Infinite Peripherals

DPP-250 USER MANUAL

DPP-250

Android™ is a trademark of Google Inc.

Made for iPod iPhone iPad

CONTACT INFORMATION

Mobility Sales/Technical Center:

Infinite Peripherals, Inc.
1641 McGaw Avenue
Irvine, CA 92614
Toll-Free: (866) 278-7860
Office: (949) 222-0300
Fax: (949) 222-0375

Headquarters/Main Warehouse:

Infinite Peripherals, Inc.
2312 Touhy
Elk Grove Village, IL 60004
Toll-Free: (800) 278-7860
Office: (847) 818-1260
Fax: (847) 818-1287

Technical Support:

Infinite Peripherals, Inc.
1641 McGaw Avenue
Irvine, CA 92614
Toll-Free: (866) 278-7860
Office: (949) 222-0300
Fax: (949) 222-0375

Email info@ipcprint.com
ipcprint.com

Infinite Peripherals

CONTENTS

Contents	1
Legal Notice	2
Compatability	3
Technical Data	4
Box Contents	5
Getting Started	6
About You DPP-250	7
Charging The DPP-250	8
Status and Operating Modes	9
Loading Paper	10
Diagnostic self-test	11
Diagnosticself-Test	12
DIP Switch Settings	13
DIP Switch Location	14
Memory Switch Setting	15
Hardware Setup	16
Memory Switch configuration	17
Communications Configuration	18
Dimensions	19
Bluetooth® Setup iOS	20
Bluetooth® Setup Android	21
Magnetic Swipe Reader	22
Replacing Battery	23
Developing Solutions	24
Troubleshooting	25
Resident Command Set	26
Federal Communications Commission	30

LEGAL NOTICE

"Made for iPod," "Made for iPhone," "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory iPod, iPhone or iPad may affect wireless performance.

iPod, iPhone, iPad touch are trademarks of Apple Inc., registered in the U.S. and other countries. Lightning is a trademark of Apple Inc.

The Bluetooth® word mark and logos are owned by the Bluetooth® SIG, Inc. and any use of such marks by Infinite Peripherals is under license.

COMPATABILITY

Made for

- iPhone 5
- iPhone 4S
- iPhone 4
- iPod touch (5th generation)
- iPod touch (4th generation)
- iPod touch (3rd generation)
- iPad (4th generation)
- iPad mini
- iPad (3rd generation)
- iPad 2

Android Support

- Android iOS 2.1 and higher

TECHNICAL DATA

General Specifications

Printing Specs	
Printing Method	Line thermal dot printing
Printing Speed	60mms/s (480 dots/sec) at 8.5 V
Print Width	48mm / 384 dots per line
Resolution	203dpi (8x9 dots/mm)
Dot pitch	Horizontal – 0.125 mm (8 dots/mm) Vertical- 0.125 mm (8 dots/mm)
Resident Fonts	Font A: 12 x 24 dots (32 char. per line); Font B: 9 x 16 dots (42 char. per line);
Loadable Fonts	Font C: 12 x 24 dots (32 char. per line); Font D: 9 x 16 dots (42 char. per line);
Logo Registration	1 Black and White size: 384 x 248 dots
Input Buffer	128 KB (131072 bytes)
Resident Barcodes	1D -EAN13, EAN8, UPC-A, UPC-E, Codebar, Code39, Code128 2D – PDF417, QR Code
Communications	RS232 C – max. 115200 bps, USB v 1.1, compatible with 2.0 Bluetooth® (Optional) – for iOS and Android platforms
Emulation	ESC/POS Continuous paper Mode
Thermal Paper	58mm +0/-1mm X 45mm diameter, thickness 60 µm
Electrical	
Power Supply	Rechargeable Li-ion battery (7,4 V / 1100 mAh) Battery capacity: Per Charge (~20,000 lines)
	AC adapter – DC 9 V, 1 A AC 100 – 240 V, 1,3 A, 50/60 Hz
Magnetic Stripe Reader	Magnetic Stripe Reader - 3 track unencrypted head, ISO7811 (optional)
Environment	
	Operating temp. +0°C to +45°C @ 35 to 85 % RH Storage temp. -20°C to +60°C @ 10 to 90% RH
Reliability	Printing Head: 50km (printing rate 25% max)
Mechanical	
Dimensions	6 (W) X 113 (D) X 57 (H)
Weight	295 g (without paper) 350 g (with paper)

** Specifications subject to change without notice.*

BOX CONTENTS

Your DPP-250 comes with the following items listed below:

DPP-250 Thermal Printer
With Belt Clip

AC Charger

1 Roll of Thermal Paper

USB mini cable

Software: Drivers & SDK

Because of the continually evolving Driver & SDK to support new mobile devices, Drivers & SDK are distributed online and is available for download at our website indicated below. For the latest on using the DPP-250 Drivers & SDK, please refer to the SDK's documentation.

For the latest DPP-250 SDK's please visit our developer portal:

http://ipcprint.com/developer/downloads

GETTING STARTED

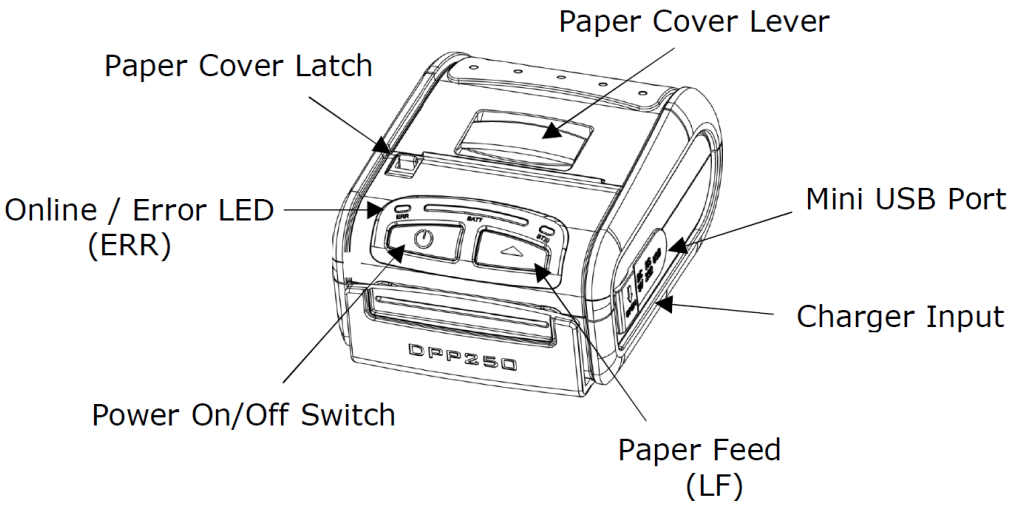
The DPP-250 allows you to print information from your smartphone over Bluetooth®. Before using the DPP-250 thermal printer the battery should be properly charged. The following Quick Start guide will help to get your DPP-250 ready for use.

Quick Start Guide

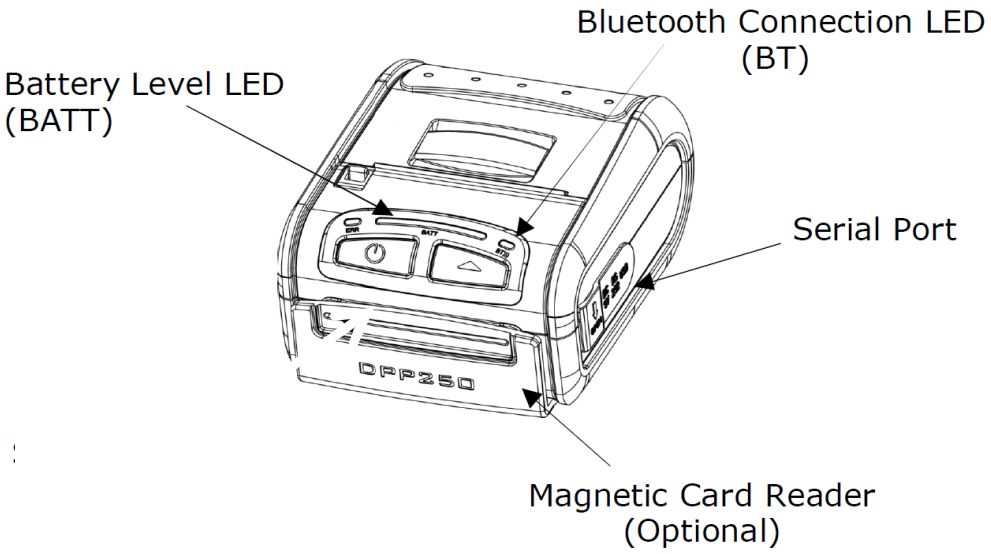
Step	What to do	Purpose	Where to find more Information
1	Fully charge your DPP-250 as recommended In this manual	The Lithium Ion battery pack should be fully charged before use to ensure long battery life.	Charging Battery, Page 8
2	Load DPP-250 print media (Thermal Paper)	DPP-250 requires Thermal paper for printing	Loading Paper, Page 10
3	Install DPP-250 Software	Printing requires software to be installed onto your mobile device	Printing software is not provided by Infinite Peripherals account manager for recommendations on Third-Party solutions. Developers should refer to the section in this manual on "Developing Solutions".
4	Setup Bluetooth® pairing	Set up Bluetooth® pairing to allow DPP-250 to communicate with the Bluetooth®	Bluetooth® Setup, Page 20, 21

ABOUT YOU DPP-250

DPP-250 View 1



DPP-250 View 2



CHARGING THE DPP-250

The DPP-250 uses a Lithium Ion rechargeable battery pack. Before first use, the DPP-250 battery pack should be charged for at least 4 hours.

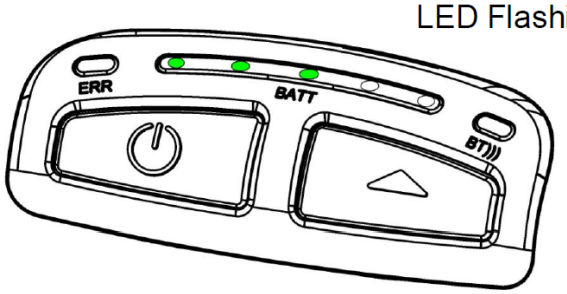
To prevent electrical damage to the DPP-250 and/or battery pack, please use approved AC Charger only.

LED status while charging battery are shown in the illustration below.

DPP-250 Charging

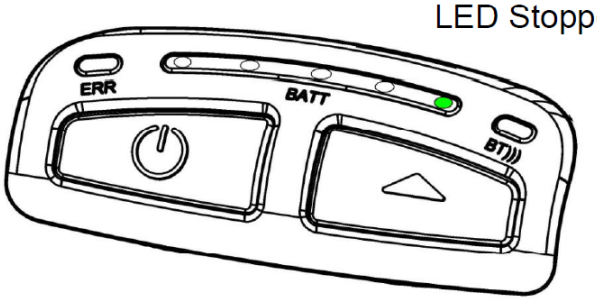
Solid RED = charging
Solid GREEN = fully charged (~4 hrs.)

LED Flashing



DPP-250 Full Charge

LED Stopped Flashing



STATUS AND OPERATING MODES

The DPP-250 uses LEDs to indicate various conditions of operations. This may be charging, active or online low conditions. The following explains this conditions and LED indication.

Printer Status		
Charging LED		Solid GREEN=Battery at full charge
		GREEN (from left to right) Battery charging
Status LED		Power ON
		Flashes green-low battery
		It lights in red-end of the paper or paper out. After the loading a new paper roll, LED turns green
		Magnetic Card reading=lighting simultaneously in both directions-from the middle outwards to the left and right.
		Flashing green/red-the printer thermal head is overheating.
BT		Flashes blue when PAIRING.

LOADING PAPER

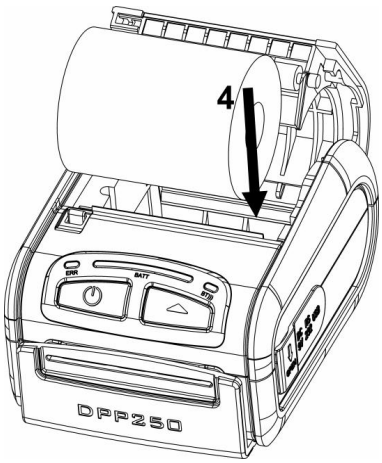
The DPP-250 uses a drop-and-load design making paper loading easy and trouble free. To load paper, simply lift up the paper cover latch and drop in the new roll as shown in the steps below.

1. Slide the paper cover latch to unlock the paper cover as shown in the figure on the right.

2. Lift the paper cover latch to open the paper cover as son as shown in the figure on the left.

3. Drop in the new roll or thermal media as shown in the figure on the right.

   Be sure to pull at least 12mm or more of media above the top of the printer before closing paper cover.



4. Close the paper cover until it snaps lock.

5. Slide paper cover to lock the cover in place.

DIAGNOSTIC SELF-TEST

The DPP-250 LF switch/button is used for entering various printer modes. These modes can be used to assist developers in debugging problems related to programing and communication. The following explain how to access the various operating modes.

Step 1. Make sure the printer is OFF (on-line LED is OFF) before performing Step #2.

Step 2. Press and hold the line feed button (LF). While pressing the (LF) button, press the (POWER) button momentarily and release when one of the conditions below:

LF Button operation Modes	
Holding LF button while power on for ~ 0.5 sec and releasing it after 1-beep.	SHORT SELF TEST print.
Holding LF button while power on for ~2.5 sec and releasing it after 2-beep.	Hex DUMP mode. All input data are printed as hexadecimal.
Holding LF button while power on for ~ 4.5 sec and releasing it after 3-beep.	LONG SELF TEST print.
Holding LF button while power on for more than 8.5 sec and releasing it after the 5-beep (long 4-tone) beep.	Program mode- loading the printer firmware.
Holding ON button while power on for ~4 sec and releasing it after 1-beep.	Temporary forcing 9600 bps serial speed.
Holding ON button while power on for ~6 sec.	Hardware Setup Mode.

Note: Care must be taken when entering operating modes to prevent the clearing of factory preset configuration information.

DIAGNOSTICSELF-TEST

The DPP-250 has a built-in test pattern that shows the printer's current configuration as well as the various resident printer fonts. The self-test can also be used as a troubleshooting tool to determine printing problems or battery level. The steps below show how the self-test is printed activated.

- ***Resident font sizes***
- ***Characters per line***
- ***Text formatting***
- ***Resident character set***
- ***Resident barcode symbols***
- ***Printer's Configuration***

DIP SWITCH SETTINGS

The DPP-250 is designed to use different methods of communications. Care must be taken to ensure that the DIP Switches are not changed from its default factory configuration unless required.

Dip Switch Settings

The printer has two absolutely different operation modes. They are determined by the state of switch Sw2:

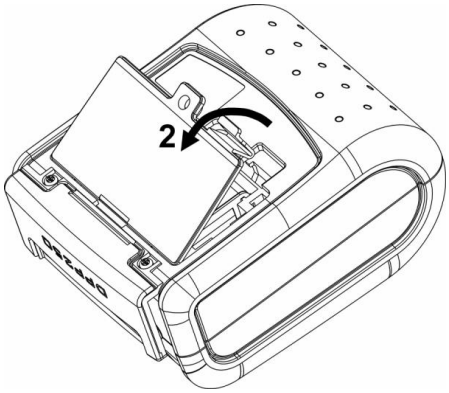
- Continuous Paper mode
- Black Mark mode

These two modes detect paper present conditions differently. The black mark searching mode is designed for proper alignment of the starting print position on indexed media with printed information.

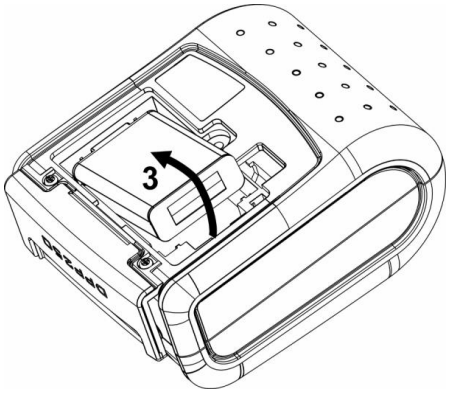
Switch	OFF	ON
SW1	Enable BT	Disable BT
SW2	Continuous Paper mode	Black Mark mode
SW3	None	Xon/Xoff protocol
SW4	Normal operation mode	Protocol mode

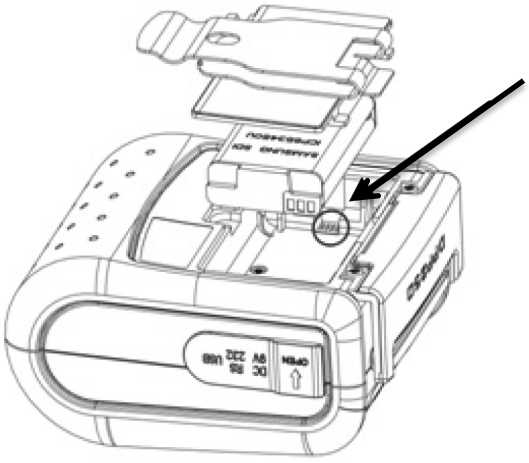
DIP SWITCH LOCATION

#1 – Remove battery cover



#2 – Remove battery





MEMORY SWITCH SETTING

The DPP-250 uses nonvolatile memory for storing some of the printer default configuration. The following table shows the available options.

Memory Switch Options	
Memory Switch (See command reference GS command)	1000000010
Baud Rate	115200 bps
Auto Off Time	10 minutes
Print Darkness	100%
Character Table	Wester (1252)
USB Device Class	Printer

Memory Switch Settings

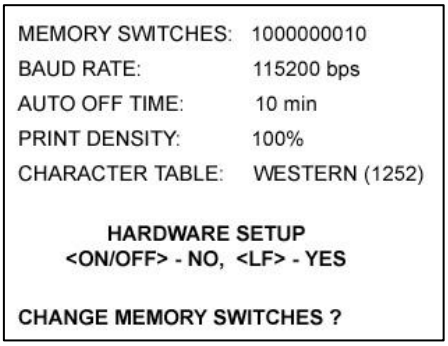
Step 1. Make sure the printer is OFF (ERR LED is OFF) before performing step #2.

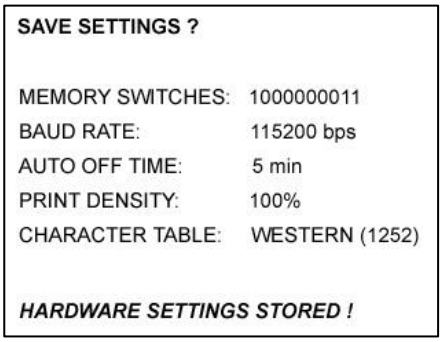
Step 2. Press and hold power (LF) button. The ERR LED flashes red / green every second.

Step 3. Release the (ON) button in about 6 sec. and wait for the printer to print out the current memory settings. Follow the printer instructions to make the necessary changes.

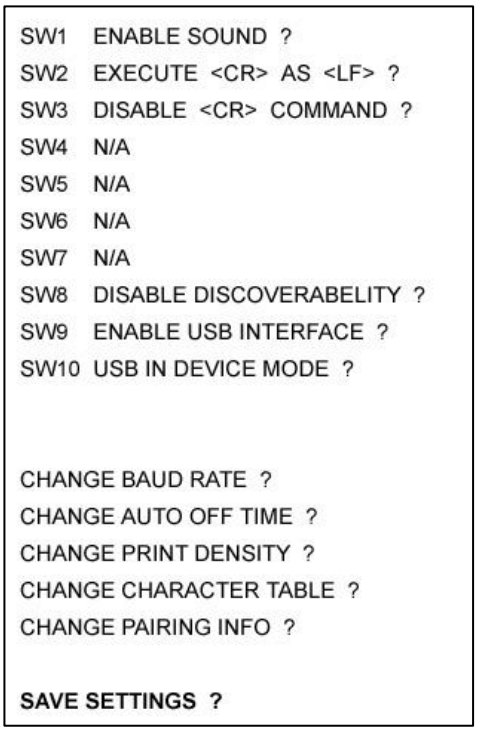
The Pressing LF (YES) – confirms changes.
The pressing on/OFF (No) – cancels changes.

Note: Care must be taken when changing factory preset configuration information.





MEMORY SWITCH CONFIGURATION



- SW1: Enable/Disable buzzer.
- SW2: Disable CR / CR is executed as LF
- SW3: Enable/Disable LF
- SW4: LF immediately after CR/ Disable LF immediately after CR
- SW5: Font A (12x24)/ Font B (9x16)
- SW6-7: Reserved for future features.
- SW8: Prevents others from discovering printer when set to ENABLE. Must be set after pairing is completed.
- SW9: Disable/Enable USB. Allow the use of USB port for communications.
- SW10: (OFF) set USB as the host mode. Host/Device

COMMUNICATIONS CONFIGURATION

The following default configurations are used for the different communication methods.

- Communication with Smartphone
- Via Bluetooth®

Memory Switch Options	
Memory Switch (1 thru 10)	*******010
Physical Switch Options	
DIP Switch (1, 2, 3, 4)	*, OFF, OFF, **ON**

- Communication with PC (using windows printer driver)
- Via Bluetooth®, USB or Serial:

Memory Switch Options	
Memory Switch (1 thru 10)	*******011
Physical Switch Options	
DIP Switch (1, 2, 3, 4)	*, OFF, OFF, **OFF**

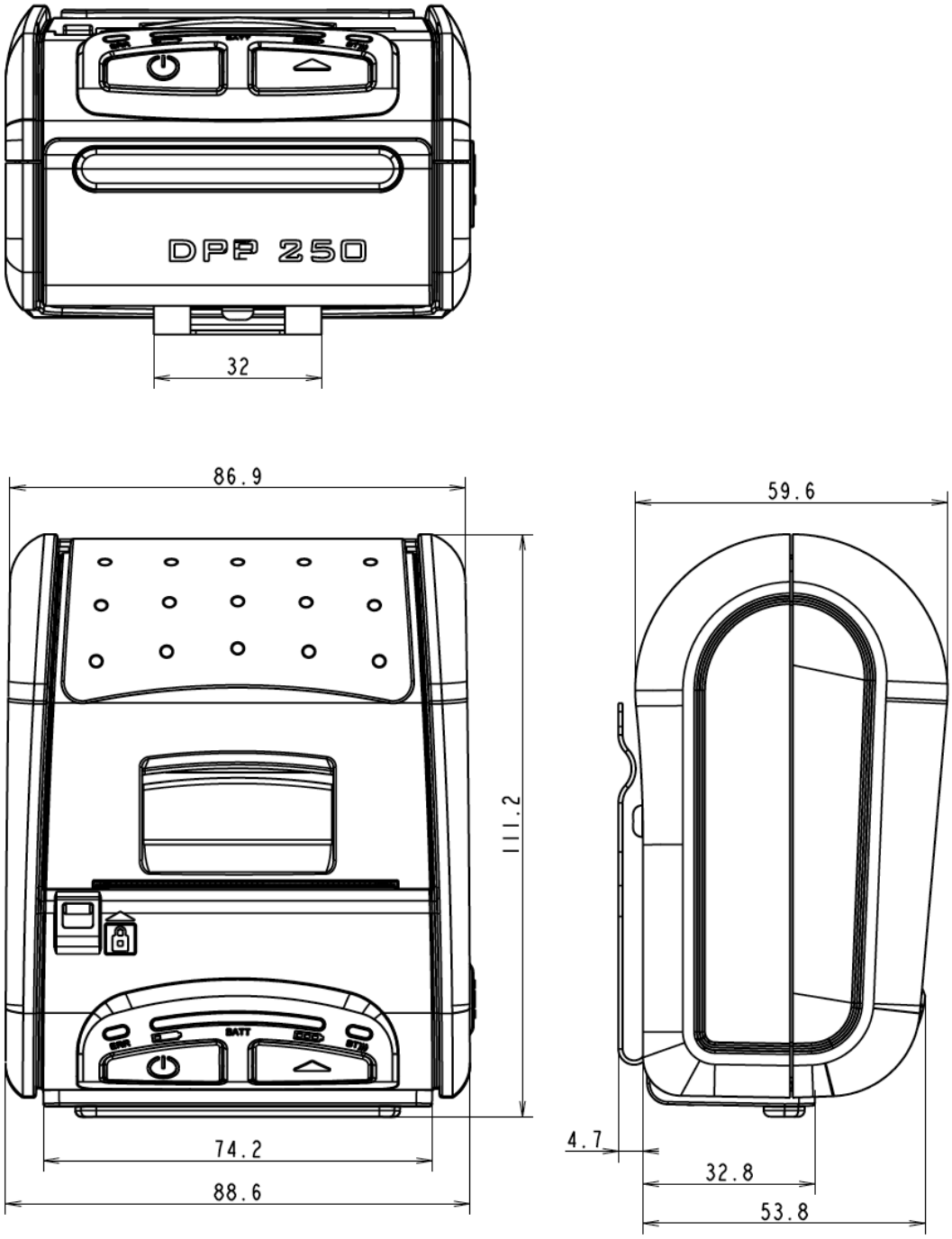
- Service mode (changing printer settings, loading firmware) communication with PC
- Via Serial

Memory Switch Options	
Memory Switch (1 thru 10)	*******011
Physical Switch Options	
DIP Switch (1, 2, 3, 4)	*, OFF, *, **ON**

**Depending on user requirements can be 1 or 0*

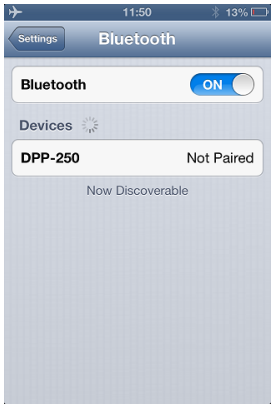
Notes: *When not using Driver/SDK developer tools, set DIP Switch 4 to OFF.*

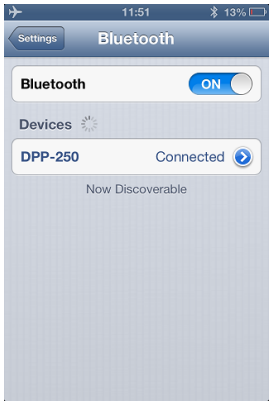
DIMENSIONS

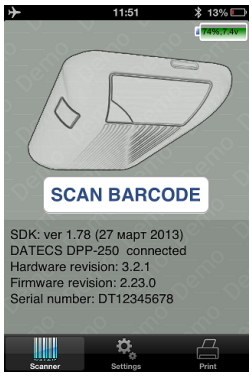


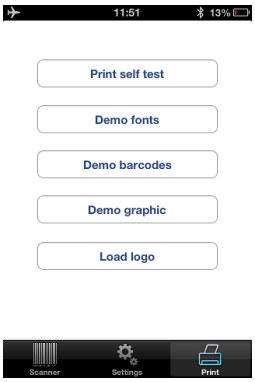
BLUETOOTH® SETUP IOS

Enable Bluetooth® on iOS device. Select Bluetooth® device, after this Pair to DPP-250. When is connected DPP-250 to iOS device, blue LED on DPP-250 will start blinking. Start app “Library Demo” and select “Print”.





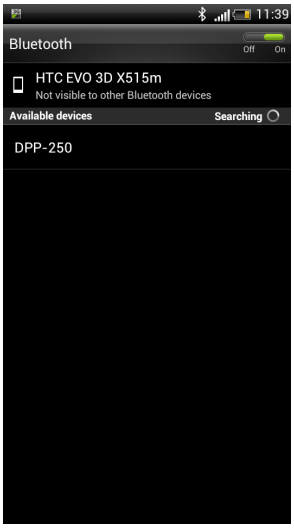


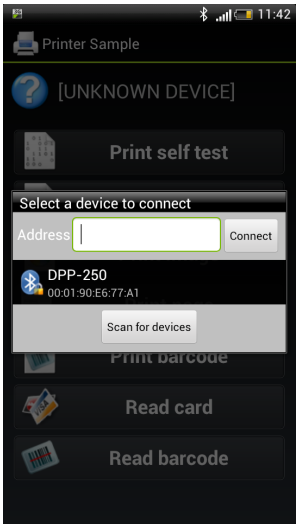


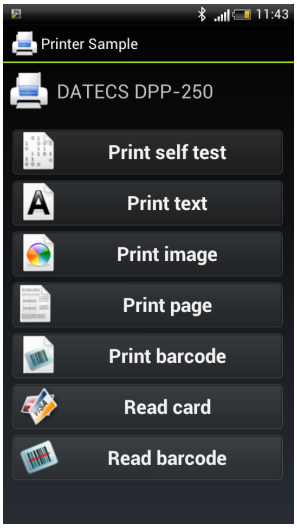
You can select “Print self test” to test Bluetooth® connection.

BLUETOOTH® SETUP ANDROID

Enable Bluetooth® and press search device. On the list with available device will show “DDP-250”, pair device. Default PIN is “0000”. When is paired open application “Printer Sample”. Select a device to connect “DPP-250”.
For testing the Bluetooth® connection press “Print self test”.

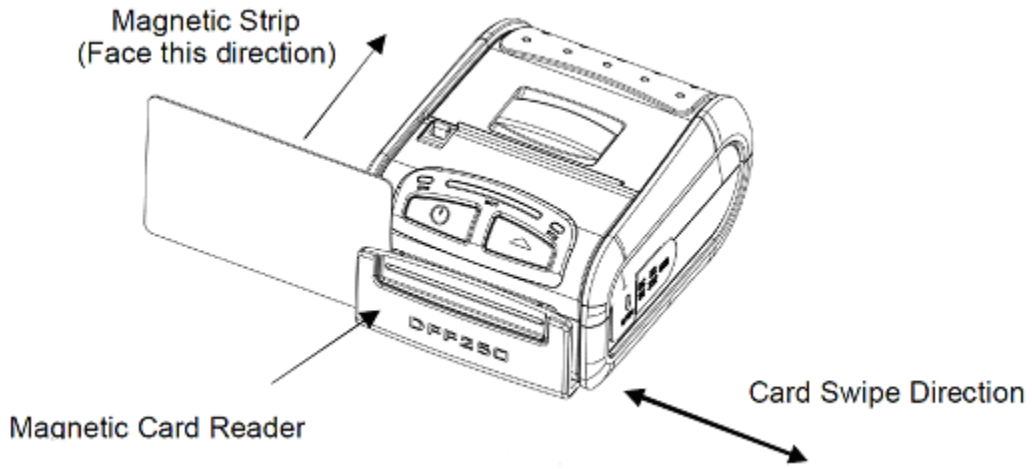






MAGNETIC SWIPE READER

The DPP-250 has a built-in magnetic card reader. The card reader incorporates a (3)-track magnetic read head requiring a single swipe to read field data from all three tracks.



The reader's magnetic head faces towards the front of the printer. When placing the card into the reader, the magnetic strip must be facing as show in the figure above. Keep the bottom edge of the card flat on the inner base of the reader to ensure that the magnetic strip passes over the read head evenly.

When swiping the card through the reader, use an even consistent motion from start to finish. The speed of swiping can vary however the speed must be consistent from start to finish of the swipe in order to accurately read card data.

User Notes:

To use the magnetic card reader feature, special software must be used to read and process the card information. If you do not have card reading software, please consult your reseller to find out if this software is available or contact Infinite Peripherals for recommendations on compatible third party software solutions.

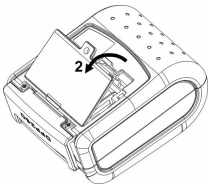
REPLACING BATTERY

To replace the battery in the DPP-250 thermal printer follow the steps below.

Steps:

1. Turn over the DPP-250 and place on a flat surface. Rotate the (2) locking levers as shown in the figure on the right.

2. Lift the battery cover as showed in the figure on the right.



3. Lift the battery as shown in the figure on the right.

4. Detach the battery connector as shown in the figure on the right. Reverse Steps 1-4 to install the new battery pack.

DEVELOPING SOLUTIONS

Integrating the DPP-250 into your mobile solution requires the use of the DPP-250 smartphone SDK. The SDK incorporates API specific to developing printing applications and using the integrated Magnetic Card Reader / Smart Card Reader capability of the DPP-250.

The table below shows the SDKs currently available for smartphone devices.

OS	Language	SDK-IDE
iOS	Objective-C	Xcode (Objective-C)
Android	Java	Eclipse

For details on using the DPP-250 SDK, please refer to the SDK's documentation.

For the latest DPP-250 SDK's, visit our developer web site at:

http://ipcprint.com/developer/downloads

TROUBLESHOOTING

If you are having problems capturing signatures refer to the table below for possible causes.

Item	Problem	Possible Cause
1	Paper feeds after issuing a print job but no printed text visible on paper.	Thermal media is specially coated on outside of roll. Remove paper roll and reload property. See section" Loading Paper" for details on loading paper.
		Paper cover not installed properly. See Section "Loading Paper" for details on replacing paper cover.
2	On-line LED blinks RED continuously.	Battery voltage low.
		Printer out of paper or Paper not properly loaded. See section "Loading Paper" for detail on loading paper.
3	Text and/or graphics are printed very light.	Battery Voltage low. See section on charging battery pack.
		Thermal media not imaging correctly. Verify that you are using the recommended thermal media.
4	Strange characters are printed when printing.	Battery voltage low. See section on charging battery pack.
5	Printer stops responding to print and paper feed commands.	Remove battery for 5 seconds and reconnect battery.
6	Printing is light or missing only on half of the print width.	Paper cover not properly installed. See section on loading paper.
		Mechanism jarred loose. Contact technical support

RESIDENT COMMAND SET

No.	Command	Description
1	BEL	Sounds the buzzer
2	HT	Horizontal Tab command
3	LF	Printing a line and paper Feeding command
4	FF	Printing and paper feeding to the black mark position
5	CR	The operation of the command depends on the state of the configuration flags 2,3 and 4
6	DC2=	Image LSB/MSB select
7	DC3(	DC3 (Ruled line) commands sequence start
8	DC3+	Sets the ruled line ON
9	DC3-	Sets the ruled line Off
10	DC3A	Selects ruled line A
11	DC3B	Selects ruled line B
12	DC3C	Clears selected ruled line buffer
13	DC3D	Sets a single dot in selected ruled line buffer
14	DC3 F	Ruled line pattern set
15	DC3 L	Ruled line set
16	DC3 M	Selects ruled line combine mode
17	DC3 P	Ruled line 1 dot line print
18	DC3 p	Ruled line n dots line print
19	DC3 v	Ruled line image write
20	CAN	Canceling print data in page mode
21	ESC FF	Printing data in page mode
22	ESC RS	Sounds the buzzer
23	ESC SP	Setting character spacing
24	ESC #	Setting EURO symbol position
25	ESC $	Specifying the absolute horizontal position of printing
26	ESC %	Selecting/Canceling the printing of downloaded user character set

27	ESC &	Selecting user character set
28	ESC !	Specifying printing mode of text data
29	ESC *	Printing graphical data
30	ESC +	Switch's OFF the printer
31	ESC -	Selecting/Canceling underlining
32	ESC .	Printing self test/diagnostic information
33	ESC 2	Specifying 1/6-inch line feed rate
34	ESC 3	Specifying line feed rate n/203 inches
35	ESC <	Changes print direction to opposite
36	ESC =	Data input control
37	ESC >	Selecting print direction
38	ESC ?	Reading magnetic stripe card
39	ESC @	Initializing the printer
40	ESC CAL	Black mark mode sensor calibration
41	ESC D	Setting horizontal tab position
42	ESC E	Specifying/Canceling highlighting
43	ESC F	Filling or inverting the page area in page mode
44	ESC G	Specifying/Canceling highlighting
45	ESC I	Specifying/Canceling Italic print
46	ESC J	Printing and Paper feed n/203 inches
47	ESC L	Selecting page mode
48	ESC N	Reading programmed serial number
49	ESC R	Selecting country
50	ESC S	Specifying speed (bps) of the serial port
51	ESC T	Printing short self test
52	ESC U	Selecting/Canceling underlined printing
53	ESC V	Selecting/Canceling printing 90°- right turned characters
54	ESC W	Defining the print area in page mode
55	ESC X	Specifying max printing speed
56	ESC Y	Selecting intensity level
57	ESC Z	Returning diagnostic information

58	ESC \	Specifying relative horizontal position
59	ESC]	Loading the default settings stored in Flash memory
60	ESC ^	Saving current settings in Flash memory
61	ESC _	Loading factory settings
62	ESC `	Reading the Battery Voltage and Thermal head temperature
63	ESC a	Aligning the characters
64	ESC b	Increasing text line height
65	ESC c5	Enabling/Disabling the functioning of the button LF
66	ESC d	Printing and feeding paper by n- lines
67	ESC i	Feeding paper backwards
68	ESC o	Temporarily feeding paper forward
69	ESC pair=	Enabling/Disabling PAIRING info saving in Bluetooth® mode
70	ESC pwd=	Programming a new Bluetooth® password (PIN)
71	ESC r	Full command for sounding buzzer
72	ESC s	Reading printer settings
73	ESC u	Selecting code table
74	ESC v	Transmitting the printer status
75	ESC x	Setting the time interval for automatically switching Off the printer
76	ESC y	Setting USB response strings
77	ESC {	Enabling/Canceling printing of 180° turned characters
78	GS FF	Printing in page mode and returning to standard mode
79	GS $	Specifying the absolute vertical position in page mode
80	GS)	Setting printer flags (memory switches)
81	GS *	Defining a Downloaded Bit Image (logo)
82	GS /	Printing a Downloaded Bit Image
83	GS :	Starting/ending macro definitions
84	GS B	Enabling/Disabling inverse printing (white on black)
85	GS C	Read the Real Time Clock
86	GS H	Selecting printing position of HRI Code
87	GS L	Setting the left margin
88	GS Q	Printing 2-D barcodes

89	GS R	Filling or inverting a rectangle in page mode
90	GS S	Selecting 2-D barcode cell size
91	GS T	Selecting the print direction in page mode
92	GS U	Selecting standard mode
93	GS W	Setting the print area width
94	GS X	Drawing a rectangular box with selected thickness in page mode
95	GS Z	Printing the non blank page area only in page mode
96	GS \	Specifying the relative vertical position in page mode
97	GS ^	Executing macro
98	GS c	Setting the Real Time Clock
99	GS f	Setting the font of HRI characters of the barcode
100	GS h	Setting the height of the barcode
101	GS k	Printing a barcode
102	GS p	Settings for 2D barcode PDF417
103	GS q	Selecting the height of the module of 2D barcode PDF417
104	GS w	Selecting the horizontal size (Scale factor) of the barcode
105	GS x	Direct text print in page mode

Asian Languages Support

106	FS !	Specifying printing mode of two-byte text data
107	FS &	Selecting two-byte text mode (JIS or GB2312)
108	FS -	Selecting/Canceling underline mode for two-byte text mode
109	FS .	Canceling two-byte text mode
110	FS C	Selecting Shift-JIS mode (Japanese version only)
111	FS S	Specifying character spacing for two-byte text mode
112	FS W	Selecting double size characters for two-byte text mode

FEDERAL COMMUNICATIONS COMMISSION

Federal Communications Commission (FCC) Statement

15.21
You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

1) This device may not cause interference and

2) This device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.